

Researchers identify brain changes involved in alcohol-related sleep disturbances

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A review article published online in *Behavioral Brain Research* provides novel insight into changes that happen in the brain as a result of chronic alcohol exposure that can lead to disruptions in the sleep cycle.

Clinical assessments and research indicate that individuals with alcohol use disorders frequently suffer from severely disrupted [sleep](#). This can occur when people are actively drinking, when they are going through withdrawal or when they are abstaining.

"Sleep-wake disturbances can last for months, or even years, after someone stops drinking, which indicates that chronic alcohol abuse could cause long-term negative effects on sleep," said Subimal Datta, PhD, professor of psychiatry and neurology at Boston University School of Medicine (BUSM) who served as the article's senior author.

The researchers hypothesize that chronic alcohol use leads to dysfunction of cholinergic cells (cells that synthesize neurotransmitter acetylcholine) in an area of the brain stem called the pedunculopontine tegmentum, which is involved in regulating many aspects of sleep. As a result of the prolonged [alcohol exposure](#), the activity of chemicals that excite neurons in the brain increases while simultaneously decreasing the activity of a chemical that inhibits this neuron activity. This results in the over-activity of brain chemicals in the brain and causes a disruption in the normal sleep cycle.

"Identifying the specific mechanisms that lead to change in [brain](#) activity

will allow us to develop targeted medications, which could help treat people suffering from sleep issues related to [alcohol use disorders](#)," added Datta.

Provided by Boston University Medical Center

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